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Stepping STONES

In Step

A NEWSLETTER FOR ROLE MODELS

Women in Science and Technology

This issue of *InStep* focuses on women in science and technology. The Alberta Women's Secretariat takes on the challenge of encouraging and assisting young women to pursue careers in science, technology and in non-traditional sectors. The Pandora Project, like the Stepping Stones role model program, is opening up new worlds of possibility to young women, and the Secretariat is pleased to be a funding partner in this exciting project.

Pandora makes career information available to young people considering their working futures. But this is a project with a difference. It takes into account the broader spectrum of career exploration and does not focus only on occupational analysis. The project assesses both the values and the skills of the participants. And Pandora delivers its program through an interesting, interactive videodisc format. In this issue of *InStep* you'll meet a Stepping Stones role model who is also featured on one of the Pandora videodiscs.

This project is impressive for two reasons: because those using it can find out what is involved in the fields of technology and science and what it takes to get there. Some young women who have not been encouraged to think about possibilities in such areas will realize that a good education in math and sciences could lead them into rewarding careers. Pandora's information shows them that these options are as open to them as they are to young men.

Once junior high and high school girls are more aware of the goals and satisfactions of careers in science and technology, and as they see women role models working in interesting jobs in these areas, more and more will enter these fields.

As Stepping Stones role models, you offer the encouragement and expertise young women need. Barriers to success are falling all the time for women in the workforce. Plainly, you as role models and those you inspire are turning traditional "male occupations" into occupations in which all can participate.

Did you know?

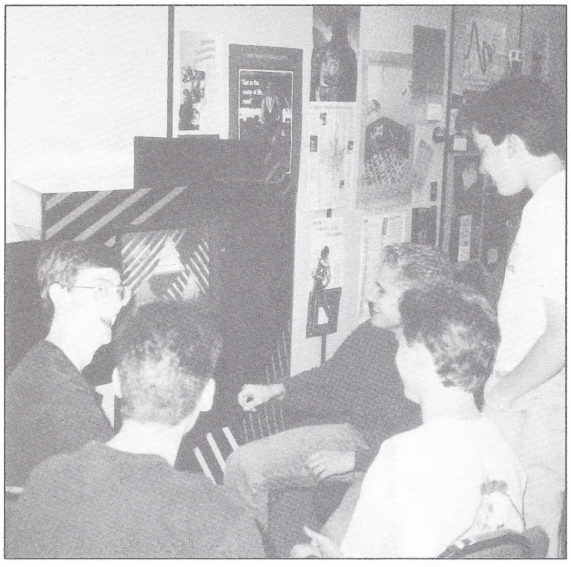
- Some Canadian schools have special programs to help girls suffering from math "anxiety" (not a biological but definitely a communicable disease).
- An American study entitled "How Schools Shortchange Women", commissioned by the American Association of University Women, concluded that girls and boys start school roughly equal in skills and confidence, but girls trail by the end of high school.
- In 1993-94, more than 2,500 Canada Scholarships of up to $8,000 will be awarded to outstanding students entering full-time undergraduate science and engineering studies at accredited Canadian universities and up to 900 more will go to students entering full-time technology studies at community colleges and eligible private training institutes. These scholarships are divided equally among women and men.
- Barbie Eats Her Words: "Teen Talk Barbie" had her mouth washed out for saying "Math class is tough." Mattel Canada opted to delete Barbie's not-so-bon-mot after many educators and parents protested the doll's reinforcement of the old stereotype that mathematics is harder for girls.

Inside Information

Finding Pandora's Box Filled With Hope

In Greek mythology, Pandora, the first woman, opens a box containing all the world's evils. The disasters end as hope is released from the box. In Alberta today, Pandora's name is on a box that is helping young women and men learn more about career paths in technology. The "box" is a set of interactive videodiscs, and hope is a strong element. The Alberta Women's Secretariat is one of several funding partners in the Pandora Project developed by Concordia College's Centre for Career Development Innovation, and Vicom Ltd., an Edmonton-based video production company.

According to Concordia's Dr. Dave Redekopp, Pandora began as part of a government effort to promote Alberta's economic diversification. Alberta Technology, Research & Telecommunications was looking for ways to promote a high technology environment. Meanwhile, the Centre was focussing its efforts on various ways to show options and possible career pathways to young people, particularly young women. The two came together through Vicom's research and the idea for Pandora grew. From the beginning, there was a strong move to show how people's values can lead them into certain careers. As Dr. Redekopp says, "It's the heart that leads you into a career, the skills get you there. Most career pathway information focuses on salary ranges and educational requirements, but we thought, let's look at the values."



Students exploring Pandora

Pandora is a soft-sell approach; there is no explicit message for women, rather, Dr. Redekopp says, "You take a sector that's generally gender-free, such as environment and show that science and math are just tools that get them there." Pandora invites users to "Dare to Dream" while showing women and men working together in environment, health, computing, materials and processes, and telecommunication. Skill levels in each of the sectors are discussed as technical, professional, managerial, and entrepreneurial. Again, Dr. Redekopp explains, the soft sell approach promotes the idea of women and men working together showing "It's normal, natural and appropriate for women to be here." A facilitator's guide accompanies the disk and the material is also available in hard copy format.

Pandora was pilot tested in five schools in Brooks, Calgary, Sherwood Park, and two in Fort McMurray as well as at Career Development Centres in Hinton, Grande Prairie, Edmonton and Calgary. In Fort McMurray, Syncrude and Suncor purchased the kiosks, videodisc players, computers, colour monitors and touch-screens so students at Father Patrick Mercredi and Westwood Community High Schools could have a Pandora of their own. Syncrude's advertising and community relations co-ordinator Merle Rudiak believes Pandora will help companies like Syncrude which rely on a highly-technical workforce. "The more you have available to students to explore the different options, the easier it is for them to choose an appropriate career. With this system, students are able to take a look at a variety of career paths. There needs to be a greater motivation for students to encourage them to stay with the math and science programs that are prerequisites for these (technical) fields."

Tonya Zelinsky was one Father Mercredi student who worked with the Pandora program. In conjunction with her computer class last year, she examined one of the disks and did a report. Her verdict: "I think it's an excellent idea. Students are wary of it at first because they're unfamiliar with how to use it, but it does teach you a lot about different careers. I think it will be very useful for students. It's good to have it in the school." Tonya was impressed with the easy-to-follow instructions and would like to see Pandora expanded to include a greater variety of careers. Some 779 users completed a survey after using Pandora. Users gave it high marks for user-friendliness, language, and realism among other areas.

Pandora will be available for purchase by schools early in the new year. Further information is available from Concordia's College's Centre for Career Development Innovation in Edmonton. Phone 466-6633.

Pearl Poon: Role Model on Video

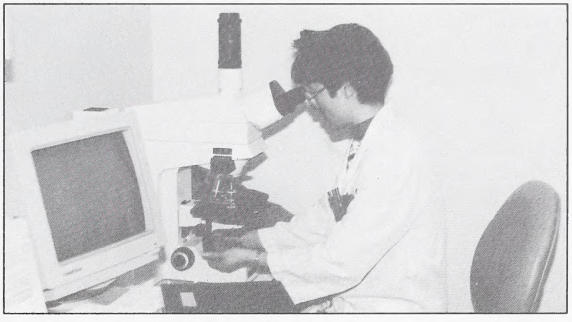
The Pandora videodisc system offers lots of facts and figures about careers. But it also features some important people. Pearl Poon is one of these. A Stepping Stones role model, Pearl is a Chemical Technologist for The City of Edmonton's Public Works Department where she works in water analysis. Pearl likes her job which requires her to analyze atomic absorption and trace metals and identify bacteria in the city's water supply. She also likes her co-workers, over half of whom are women working under the direction of Dr. Kay Simpson.

Reflecting on her days at East Glen High School, Pearl says she realized she was good in Chemistry and Math and began to entertain ideas of a career in the sciences. Her family did not particularly encourage such a career, but she feels that she didn't experience any pressure "not to be in sciences" in school. In fact, she was encouraged by the fact that "the girls were equal to if not better than the guys" in these studies. After a two-year Chemical Technology course at NAIT, Pearl began working at the lab.

What does this field of work offer women? Pearl likes the job because it's not routine and requires her to move around from station to station using different instruments. It's a job that has great challenges and offers her a chance to solve some tough problems. She's also happy to be working in a job which promotes her further studies in Chemistry at the U of A.

Pearl is Mom to two children ages 10 and 12. She's very proud that both her daughter and her son love math and science in school. She says it just comes naturally to both of them and she encourages this interest in them equally.

When asked if she always wanted to be a Chemical Technologist, Pearl laughs and says "No, actually I wanted to be a hairdresser when I was younger — I was good with my hands." Today she's glad she went for this non-traditional job for women. "The pay's above average" she says and she takes pride in her interesting work. ■



Pearl Poon

Math + Science + Young Girls = No Easy Answers

One thing becomes clear the more one reads about or mentions mathematics, the sciences and female students in the same breath: the old approaches aren't working. A recent Edmonton Journal series noted that in 1989 only about one third of all Alberta students in Grade 12 Physics 30 were girls and roughly the same number are taking Math 31. These two courses are recommended in 29 of 34 University of Alberta honours science programs.

Why aren't more girls taking senior math and science classes? There aren't any easy or ready answers. Some research has shown that young girls opt out of math and science in junior high or high school. Dr. Carolyn Yewchuk, a U of A Educational Psychology professor and a Stepping Stones role model, believes that this phenomenon is true in the United States more so than in Canada. The reason? Math and science are entry requirements for many university programs here.

Dr. Yewchuk wants teachers to be more aware of things they may do that create chasms between girls and boys. Such awareness includes teaching practices that routinely pit girls against boys in classroom competitions. And she calls for an end to differential treatment. She cited a U.S. classroom observer's report that boys who spoke out were answered by teachers while girls were told to raise their hands to conform with the classroom rule which, supposedly, was for both genders. The teachers hadn't realized they were treating girls and boys differently. Dr. Yewchuk wants schools to be more aware of the 'hidden curriculum' which, for example, may translate into situations where boys set up lab equipment and girls wash and put it away afterwards. .

Ursula Franklin, renowned Canadian experimental physicist and professor, wants to see more motivation for girls in school than simply passing math and science "just in case." In a 1991 interview with the Canadian journal, Women's Education des femmes, she voiced her opinion on the teaching of science: "I would emphasize the joy of science, the pleasure of doing it, the sheer shared fun when suddenly something works or becomes clear" and of math, "The pleasure of playing with numbers, that's what kids often miss in encounters with math."

"Fun" wasn't a word Sara Ebert would readily associate

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with her high school math experience. Sara, a U of A environmental microbiology research technician and Stepping Stones role model, struggled with math. While drawn to the sciences, she didn't realize she'd end up working in an area that tested her math proficiency. "I always liked science so I just went with what I liked and not necessarily what I was good at. I could get honours in English and Social but I had to work to get half-decent marks in Math and Chemistry." Her post-high school education was at Concordia College and the Northern Alberta Institute of Technology. Sara works on problems of corrosion and sour gas in oil fields. She enjoys the constant variety and challenge her job presents as well as her contribution as a role model for female students.

Sara Ebert

The importance of role models is a common theme in research studies and articles on women in math and science. Dr. Yewchuk thinks young girls and boys need to see a variety of role models: "The important thing is to be exposed to as many as possible. They [students] don't need to see role models in stereotypical roles; they're already there." She stresses role models are important, "not just for girls, but boys too; we have to educate the boys."

Dr. Yewchuk's special area of interest is gifted girls. It's usual to see girls and boys working at relatively equal levels until junior high when, she says, "girls confront the contradictory expectations of being gifted and being female. Often girls embrace the female stereotypes at the expense of their giftedness." Research indicates the junior high years are crucial ones for girls. A study by the Canadian Advisory Council on the Status of Women entitled "We're Here, Listen to Us: A Survey of Young Women in Canada" indicated that twice as many young women as young men do not feel good about themselves. Such a poor self-image can affect a girl's academic performance. But some girls don't fall into this category.

Sara Kapler is a 14-year-old grade nine student who is studying both math and science. Math is one of her favourite subjects. Why math? For Sara, it's her teacher who's making the difference. "She spends a lot more time on her teaching and she takes it a lot more seriously." Sara says her math preference this year is a switch from the past when she wasn't motivated to work hard. Now she and "lots of other girls" like math. In fact, Sara's hoping her math will help lead her to a career as a doctor.

What Do I Need Math For?

Well, speech therapy for one career, and fields as diverse as linguistics, automotive technology, pharmacology, biology, soundstage design, and floristry. An attractive poster urging students to "Multiply Your Options" is available to Stepping Stones role models and teachers by contacting the Alberta Women's Secretariat. The poster makes an eye-catching addition to a classroom presentation and is a useful visual tool for math teachers.

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